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Some Skin Diseases of Small Animals *

By

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When accepting your kind invitation for me to talk to you this afternoon on "Some Skin Diseases of Small Animals," I, of course, felt extremely honoured, but I realized what an appallingly difficult task I had ahead of me. Incidentally, I have never had a previous opportunity of speaking at a meeting. Before the war, Mr. Hodgman and I were members of a small group of people in London who used to meet for discussions on clinical subjects. These discussions often lasted into the small hours of the morning and were the best way of "getting down to brass tacks" as far as some of our more difficult cases were concerned. I presumed when I received the invitation that you all knew that I was not coming here as an authority but purely as a general practitioner who, through force of circumstances (namely, practising in London) had more to do with small animals than many of you who work in the country.

The subject of skin diseases is to me absorbingly interesting and I believe it is largely due to the fact that at least 75 per cent. of our work with dogs is associated directly or indirectly with the skin. Our clients seek our advice on cases varying from the merest spot or sore to the large hairless areas complicated by other symptoms, particularly when incessant irritation is present. Our reputation therefore depends on our ability to curtail the irritation and to cure the disfigurement thus produced. Proprietary remedies are available to all for any skin affection and their failure to effect an improvement, still less a cure, is largely attributable to the fact that diagnosis of the particular condition and its cause was at fault. A veterinary surgeon with his clinical experience and diagnostic aids should be in a position to determine the cause with reasonable accuracy, provide the best remedy and estimate the probable duration of the treatment, thereby giving confidence to the client.

In my opinion, many diseases of the skin, particularly in their early stages, are similar in their outward appearances and this makes differential diagnosis well-nigh impossible. As skin diseases are parasitic or non-parasitic we must determine whether or not parasites are present.

This afternoon I see no point in discussing the parasitic diseases which we all know are due to fleas, lice, ticks, harvesters, ringworm, sarcoptic scabies, otodects and *Demodex folliculorum*. These are discoverable microscopically or macroscopically. Once any of these have been established as the cause of a given skin affection their treatment can be carried out automatically and we all have our own pet methods, one being equally good as another.

Of the non-parasitic skin diseases, we have those due, perhaps, to dietetic and vitamin deficiencies, inherited tendencies, surgical conditions, and those due to neoplasms. I do not propose to touch on any of these as they take us to a new line of country.

In the text-books under the heading of cutaneous diseases we read chapters headed—Dermatitis, Erythema, Alopecia, Dandruff, Eczema (dry and wet), Cellulitis, Acne, and possibly many others too. Do we really believe they are all separate diseases; each with a separate and specific cause and again each with a different treatment? I think you will appreciate that I am alluding to a disease which is chronic and recurrent in its phases, or rather the most noticeable symptoms are recurrent, annually, bi-annually or quarterly. Such conditions begin in the older dog as a patch of wet eczema. Year after year the same old thing recurs and recurs. In the puppy small pustular eruptions most often occur between the axilla, along the abdomen and in the groins. Again we often see along the dorsum the exfoliative type of condition; this occurs particularly in Scotties and wire-haired breeds and produces intense irritation.

The so-called "canker" (a meaningless term) is chiefly seen in the long-eared breeds and is often associated with seborrhoea or a thick, purulent, highly pungent discharge.

Cellulitis is another common condition in which, owing to external invasion, the skin becomes infected with non-haemolytic organisms, staphylococci, etc.

Of course, no headway can ever be made, diagnosis will be incomplete and future and permanent success will be prohibited unless we first of all obtain a clear clinical history whereby we can, so to speak, piece a jig-saw puzzle together. I know the difficulties of doing this, *e.g.*, time at our disposal and lack of knowledge regarding the history of treatment prior to purchase, in the case of dogs recently acquired. Owners seem to resent telling one of small details regarding the health of their pets; for example, they cannot see what connection intermittent attacks of vomiting and diarrhoea have with skin irritation. To me it would be of fundamental importance. Nevertheless, a clear picture should be obtained first. This will probably bring to light some other interesting feature which will give the impression of an original infection.

If you have not already guessed, I am, in fact, trying to put before you my observations on what I regard as a specific infection in its relation to certain skin conditions. Without treatment of these conditions on specific lines I do not believe a cure can reasonably be expected. I refer to infection with beta-haemolytic streptococci (B.H.S.). I know it is a very controversial subject, but from my experience of it I feel I could do no better than to put my views before you in order to promote a discussion. In other words, I am trying to "draw a red herring across the track."

Since 1935 I have been a very strong and ardent supporter of the B.H.S. theory and I have been guided in all my work, which runs into several thousands of cases, by our colleague who is well known to you all. I have had failures but, believe me, they were few and far between compared to the successes. I can ill-afford to carry out a line of treatment which is not proving itself. I know there are many who either wholly disagree with the theory and those who nibble at it, saying there is something in it but that the old remedies were and are just as good. Obviously, it is not for me to dictate, but I do feel that when I have briefly put before you the picture as I see it, you too will see the horizon or the whole landscape.

Now, let us see how all this begins and we will take a series of hypothetical cases:—

No. 1. A puppy, four to six months old, whilst teething shows symptoms of nasal and conjunctival catarrh, adenitis and tonsillitis. Its temperature becomes highly elevated (102 to 103° F.). There are pustular eruptions of the abdomen (often described as distemper spots). Probably a week before it had an even higher temperature with an abdominal rash (frequently described as a teething rash)

It is often the case that the external symptoms subside leaving little or nothing to be seen, even if no treatment has been given. I quote this type of case as it is commonly seen in puppies or pets in a shop or breeding kennels. We presume to have actually eliminated parasites as a cause. What is the next move? Incidentally, please do not think that this condition is confined to puppies as it does occur in older dogs and elsewhere on the body. A patient having overcome this phase of the disease, passes to another phase which I will quote in my second example.

No. 2. This is most often a dog of mature age, the history from the owner being that of dirty ears which from time to time smell badly and from which a little waxy substance may be collected when cleaning with cotton wool. The usual canker lotion has been applied with varying success. We invariably find the same condition with the nose, eyes and throat existing as in the earlier case.

No. 3. Here the patient in less than twelve hours produces a circular patch of eczema oozing a serous fluid which quickly adheres to the hair. The condition is very painful and the patch increases rapidly in size. Licking of the affected parts often aggravates the condition.

No. 4. For this example I take a dog with intense pruritus, particularly the animal showing this condition along the dorsum. The patient will get under any low object which will enable it to obtain relief by rubbing. Hyperaesthesia of the dorsum is a prominent feature, also exfoliation. The hair is brittle and harsh, the skin dry and thickened, even black and in places shiny. There is also a peculiar rancid smell. In neglected cases cellulitis

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usually develops. In this type of case we find the patient lethargic. There is irregular bowel action, the faeces frequently containing quantities of mucus. Periodic attacks of vomiting also occur, producing thick mucus, sometimes undigested food. The previous history is generally the same as example No. 1.

No. 5. In the greyhound, Afghan and similar breeds a condition occurs in which the skin is scarlet and there is a vast production of scales and intense irritation with large areas of excoriation where scratching and gnawing have taken place. The patient becomes rapidly debilitated and will die if vigorous treatment is not immediately adopted.

No. 6. So often we see the case where areas of skin, some only pin-head in size, more often the size of a crown piece, are denuded of hair and slightly raised. These patches are generally grey-black in colour and on pressure will exude blood and pus. The most usual site is on the sides of the elbows, hocks, lips and neck but areas may be found anywhere on the body. On tracing back the history one usually finds the same old story of one or more of the conditions already quoted. This condition is cellulitis.

No. 7. Shedding of the coat in which quantities of hair are deposited everywhere is also a common condition. There is often no evidence of apparent skin disease. Pruritus is usually present in a mild form. Small areas of alopecia are sometimes encountered.

No. 8. This last example we are all familiar with; it is commonly known as "elephant skin," and is the last stage of the chronic exfoliative dermatitis. So descriptive is the name that no further mention need be made.

That, briefly, is a collection of some of the symptoms met with daily in practice. The pathology I leave to those who are sufficiently interested to read about it in current literature.

It must be remembered that the appearances of the skin I have just mentioned are not unlike those in animals affected by either sarcoptic mange or demodex, hence the all-too-frequent diagnosis of mange. It is not uncommon to get combined chronic B.H.S. infection, dermatitis, demodex and migratory otodects. In fact there is no end to the many combinations, all of which may at some time during the course of their invasion of the skin produce symptoms resembling each other. Therefore the greatest care is needed to make a correct diagnosis, provide correct treatment, and what is more, give the owner an estimate of time and expense likely to be involved in the treatment.

As I have said before, diagnosis of parasites depends on macroscopical or microscopical evidence. Diagnosis of the symptoms I have already alluded to depends firstly on results obtained in the laboratory from swabs and specimens sent for testing and secondly on the case history and symptoms based on clinical experience. By this I mean that should unfavourable results be obtained from the laboratory a clinician who has had experience of these complaints should not without reason "rule out" his original suspicions.

A word must be mentioned about what I would call contributory or aggravating causes. Internal parasites play an important rôle in this respect. Should the B.H.S. produce a skin disease and bowel parasites, too, be present good results cannot be expected from treatment of either one separately—both must be dealt with. The necessity of examination of faeces cannot be over-emphasized.

Septic conditions of the mouth—gingivitis, pyorrhoea, alveolitis, wounds, bites, and stings, etc.—are in my belief responsible for "flaring up" an apparently dormant condition. This is particularly noticeable in cases where parasites, *e.g.*, fleas, lice or ticks, invade the skin. Some dogs will harbour parasites and show little or no discomfort while in others an intense irritation and erythema is produced.

Then there is the food factor and (for want of a better name) the allergic factor. On neither of these do I wish to dwell because, quite frankly, I am not sure of my ground, but there is no doubt that change of diet and change of environment do assist very considerably the method of treatment.

Regarding procedure in treatment, once diagnosis has been established and contributory factors have been eliminated, treatment on "specific," or if you prefer "rational," lines should be begun. Vaccine therapy must be adopted by using either an autogenous vaccine or a stock polyvalent vaccine. Medicinally, I invariably start all treatment with a stomach lavage comprising sodium bicarbonate or normal saline half to one pint. Potassium bicarbonate, sodium bicarbonate or potassium citrate mixtures are recommended.

Externally, clipping an affected area has a most immediate effect, particularly where the irritation is most evident, on the abdomen and along the back.

In order to repair the damage done and assist in producing a healthy condition of the toxic skin I advise daily baths with warm water and ordinary white soap to be followed with thorough drying and massage. I find that two to three weeks' systematic treatment on these lines does effect a very remarkable improvement and in most cases an apparent cure. Where there is intense pruritus which is not relieved by baths I apply such medicaments as lotio calaminae and liquor picis carb., and emulsio benzoate or any of the benzocain preparations are beneficial. In dealing with moist eczemas I suggest drying the parts with calamine lotion and in a few days after a scab has formed applying a simple ointment, *e.g.*, boric or zinc, then continuing with baths.

For otitis in its early stages, flavine emulsion is good but I usually find that once this condition has developed, sooner or later surgical methods are the only means of curing it. Cellulitis is, no doubt, our chief worry and it must be treated drastically. I know of no better method than treating each area surgically by crucial incisions and curetting under each of the four flaps. This brings me to an important point and that is that all the skin conditions which I have mentioned this afternoon, with the exception of cellulitis, should be treated with gentleness and care. I do not believe in ointments and lotions except in the special cases to which I have already alluded.

Irreparable damage results from "over"-treatment with some of the so-called skin cure remedies.

Treatment for B.H.S. skin disease is not one that can be dismissed after one course of five injections and 20 baths. I find that what appear to be recurrent cases are halted by judicious preventative measures, on the same lines as the curative treatment, at intervals of three, four or six months.

It would be possible to go on and on describing some of the less characteristic conditions, but frankly, the only way to increase one's knowledge on the subject is to go on trying and not give up because of a few apparent failures. It is well worth it in the long run.

I have only roughly sketched this picture; more detail can now be put in by a frank discussion. I hope I have made clear the clinical side as we see it daily in practice, but time, of course, does not permit me to go deeper. And now I trust Mr. Hodgman and all of you in turn will tell us of your experiences, but for heaven's sake do not expect me to answer questions which can be found in any good text-book, or would be the concern of laboratory workers. However, if I can tell you more regarding my practical experiences, I shall be delighted to do so.

Discussion

Mr. S. F. J. Hodgman: He wished to take the opportunity of personally thanking Mr. Danby for visiting the Association's meeting and giving them the paper on "Skin Diseases of Small Animals." Mr. Danby, like most practitioners, was a busy man, and to prepare any paper, no matter how familiar one might be with the subject, took a good deal of time and thought.

He was glad that Mr. Danby had confined his remarks to one aspect of the many and varied skin conditions that arose in the dog. For this reason he did not intend to trespass even on the confines of Mr. Danby's subject, in fact, he was not going to discuss the paper at all as he considered that Mr. Danby had given them quite enough matter for discussion and argument. He would, however, like to stress some of Mr. Danby's remarks and if in doing this he refreshed all their memories on a few elementary physiological facts, he made no apology, as he believed they were all apt to forget the wood in a too concentrated search for the trees.

Personally, he did not believe that the B.H.S. was the only villain of the piece although he was prepared to admit it played its part.

When one dealt with skin diseases one often failed to stop and think that it was an organ of the body that was being dealt with and not a mere covering for sub-adjacent structures. He had once heard it expressed in the following way: "The skin is not the paper round the parcel but an integral part of the parcel itself." It was, of course, a highly organized structure with very important functions. A healthy epidermis was the first line of defence against invasion of the body by organisms of disease. As they knew, the most minute abrasion might give entrance to the hosts of death.

The functions of the skin might be classified as follows:—

1. Covering and protection.
2. Regulation of temperature.
3. Excretory.
4. Absorptive.
5. Sensory.
6. Psychic functions.
7. Vitamin formation.

In carrying out clinical examination the part, or parts, to be examined should be seen in an evenly diffused light, and an artificial light should be avoided if possible. One should try to follow a definite system in examination, using the eyes first and afterwards the fingers. One should also look for the distribution of the lesions, whether general or local, and then examine the type and, where possible, discover the initial lesion. Sight revealed elements of skin involved and also the colour of the lesions. Touch

played a secondary part in the diagnosis of skin diseases, but it did enable one to judge more accurately whether the lesions were in the superficial, or in the deeper layers of the skin. It also told us if lesions were more palpable than visible, whether they were smooth or rough or of a higher temperature than the adjacent skin.

He adopted the following general principles of therapeutics:—

1. If lesions of disease were hidden beneath an accumulation of crusts, etc., he began by removing them.
2. An oozing skin surface should not be treated with an ointment; serum did not mix readily with grease.
3. Ordinarily, an ointment should not be applied to an acutely inflamed skin; grease interfered with radiation of heat.
4. In suppurative skin conditions one should not aim at destroying all the organisms *in situ* by the use of strong antiseptics.
5. Acute conditions should be soothed and chronic cases mildly stimulated.
6. Except in chronic conditions one should always use mild remedies to start with.

In the treatment of skin diseases he believed in the saying: "Success depends as much on the manner in which the remedy is applied as upon its therapeutic properties."

This brought him to the general treatment of skin diseases. He firmly believed that a healthy condition of the skin depended in a large measure upon the healthy functioning of all other organs of the body; therefore, this side of the question should be dealt with before attempting to treat the skin and in his opinion this was where the real difficulty often came in. So many primary lesions were masked by others resulting from mechanical injury caused by biting, scratching, etc., and sometimes by misguided efforts at treatment on the part of owners.

With these observations he hoped to have played some small part in stimulating a discussion on a very complex and often perplexing subject.

General Discussion

Major L. P. Pugh, having, on behalf of the meeting, thanked Mr. Danby for giving the paper and Mr. Hodgman for opening the discussion, said he thought the paper extraordinarily controversial; in fact he did not agree with Mr. Danby's orientation of the subject at all. Concerning the B.H.S., he agreed that it might be responsible for the syndrome of the bitch that whelped early and had sick puppies and subsequent outbreaks of infertility. He believed that the B.H.S. definitely had some standing there. He also thought that in many cases swabs from the skin and tonsils of healthy dogs would be positive. The B.H.S. was only one of the many organisms which were normally present on the skin of a dog's body. When examining a dog it was important to cover all the ground and consider the various conditions which might arise. In the cases where a little spreading patch of eczema or dermatitis cropped up suddenly overnight, or followed sick puppyhood, it would often be found on investigation that there was a flea lurking somewhere in the area. The condition arose from the dog scratching and introducing an infection. B.H.S. might be found on the patch. His own treatment for that type of case would not be to submit the animal to vaccination but to bath the dog and treat the patch locally.

He did not, after a primary bath, like to do any more bathing if it could be avoided. He preferred to clip the area and wash it with Huxley's "sal-antiseptic" and dry it with sulphonamide powder, in the hope that he was dealing with one of the organisms that was sensitive to sulphonamide treatment. He believed that in most of these cases the patient was predisposed to patchy irritation by external parasites. He did not see how one could exclude the possibility of parasites. Conditions arose directly or indirectly from parasites on the skin. It was not necessary to submit animals to vaccination. In other words, it was a question of "the cart" and "the horse," but which was the cart and which was the horse? He could refer to a number of cases, for instance, the Scottie with an intensely irritable back. There again he did not believe that the B.H.S. was the basis of it. There might be a number of factors which entered into the question, such as tapeworm infestation, or kidney irregularity. Also there was the type of dog which ate grass chronically and got bowel impaction. All these things might give rise to the back condition, and if they were removed the animal would recover.

There was one condition he did not feel happy about, and on which he would like Mr. Danby's views. It was the case which they all ran across at times, of a Spaniel with rashes on the ears, arms and under the armpits. He thought this might be due to bacterial infection of the skin. Frankly he had not submitted this type of case to an intensive vaccination course, and admitted that he could not cure it with any ordinary treatment.

Regarding cases of "elephant skin," were they all thinking of the same condition? If Mr. Danby was referring to the dog with symmetrical, denuded patches of skin which were thickened and black, did he think there was any connection with B.H.S.? If one castrated such dogs the hair sometimes grew again without any additional treatment. One could not say that B.H.S. entered into that story.

He thought if B.H.S. entered into the question at all, it was, in the vast majority of cases, purely a secondary invader. One should try to consider all the factors in each individual case, and treat these without suggesting courses of vaccination and multiple baths. It went right against the grain to suggest bathing a dog daily for 20 days. It seemed to him that one was going to remove all the protective grease, etc., from the coat and render it more liable to dermatitis. He would like Mr. Danby to say whether he could give case records and say definitely that the type of case that had been mentioned would respond to vaccine treatment, particularly the intensely irritable case which had been described.

Mr. Danby: He was very glad that Mr. Pugh had started the ball rolling. He had known it was going to happen and was quite prepared for everything that Mr. Pugh had said. He could give a reasonable answer to all the questions.

Mr. Pugh had admitted that B.H.S. might be the cause of troubles in the whelping kennels. Puppies would die from B.H.S. infection. He maintained that if, in a litter of four puppies, two lived and two died, the two puppies that lived would be chronically infected with B.H.S. Some time or other they would show evidence of the infection. If one admitted that there was a B.H.S. toxaemia, one had also to admit that the skin could become toxic. For these reasons he said that these skin diseases were the result of a chronic toxaemia.

This brought him to the subject of the scratching of the skin patch of moist oozing eczema. He believed that these patches were caused by the toxin, but produced immediately by some local, external irritation. He hoped that he had not suggested that this kind of case should be treated with B.H.S. vaccine solely. With moist conditions he believed in applying something cooling and drying. He would then use baths if necessary. The treatment was based on his clinical experience. If fleas or lice were present, these causes must be eliminated.

Mr. Pugh had gone on to talk about the possibility that in the case of the Scottie with irritation of the dorsum, the dog would get immediate relief after tapeworm infestation had been dealt with. One could not expect a cure unless one had eradicated internal and external parasites. Having got rid of the parasites one had to treat the skin for the toxic condition.

It had been suggested by Mr. Pugh that one of the causes of B.H.S. was the dog eating grass. But why did the dog eat grass? It was interesting to note that the dog only ate one particular kind of grass, it was the coarsest kind. The dog ate grass to make itself sick in order to bring up the vast quantity of mucus resulting from catarrh. Catarrh was the result of a B.H.S. infection and stomach lavage helped in dealing with it and assisted in treatment. That was why he had suggested stomach lavage in most cases.

The most interesting case was the spaniel, affected with the pustula type of skin disease. He thought if one enquired one would often find that the origin of the trouble was in the ears. He did not think there was any doubt that in these cases there were signs of chronic tonsillitis. Coupled with these there might be apparent discharge from the anal glands. The condition spread under the tail and around the rectum, under the axilla and in the groins. He was convinced that this was a B.H.S. infection. He was very grateful to Mr. Pugh for bringing the matter up. In such cases there was only one satisfactory way of bringing about an improvement and that was by surgical treatment, followed up by vaccine treatment. One must also get rid of the focus of infection. If this was pus, this material must be removed by syringing the anal glands or by aural section of the ears. This would bring about an immediate improvement.

Regarding "elephant skin," he thought they all had their own ideas on this subject. He did not think the condition Mr. Pugh had described was quite the type to which he himself had referred. He meant to refer to the chronic thickened skin in untreated or "over"-treated cases. A large number of these "elephant skins" were B.H.S. conditions and seemed to respond very well to baths. Mr. Pugh did not believe in the effect of baths. He thought it was one of the oldest forms of treatment known, and described in Greek literature as "Balneology." Such treatment was still practised to-day. Diseases of the scalp, etc., were still treated by baths. He could not see where the "protective greases" came in. What were those "protective greases?" If they were important and easily removed by water, why was a hound not likely to get rid of them? Owners were often just prejudiced against bathing their dogs. He, in his turn, would like to ask Mr. Pugh what the "protective greases" were and what they did?

Major G. E. Oxspring thanked the essayist and said that he was pleased to hear that he was prepared for a controversial discussion. He (Major Oxspring) did not know much about this subject, but had learned something that afternoon. He had, however, gained the impression that the toxin of B.H.S. was being put down as the cause of very many of the ailments of dogs and consequently the appropriate vaccine as the cure. It appeared to him that there was a lack of evidence in much of this and some of it was guess work. Time, however, and controlled experiments would eventually give the real answer.

One instance was the suggestion that B.H.S. toxin was a cause of skin disease. He saw no real evidence of this and agreed with Major Pugh that the majority of skin diseases in dogs were caused by ecto-parasites and was the result of scratching, producing the raw backs so commonly met with in practice.

Major Oxspring admitted that dogs did occasionally present themselves with a very irritable skin, which periodically caused the animal to rub on objects, so damaging the skin. The diagnosis had in the past been eczema. A toxin might be the cause in this case, but there was no more proof of this than there was of the cause being the excretion of irritant products from the skin.

There seemed to be little doubt that the majority of skin diseases admitted for treatment seemed to respond to the usual treatment in a reasonable time, without the use of B.H.S. vaccination. Possibly the few obstinate or incurable ones might respond to this method.

The infection of litters of puppies with B.H.S. seemed to be a much more established fact and the vaccine should be of great value in controlling this previously hopeless condition in breeding kennels.

Mr. Danby: Some months previously a Cairn terrier was put in his care and the interesting thing about it was that it had a most appalling hyperaesthesia of the dorsum. The animal was a perpetual nuisance to its owner. One other factor was that it was "over-sexed," so to speak. He had carried out a double investigation by taking swabs and making faeces tests. There was nothing in the faeces, but B.H.S. was present in the throat and prepuce swabs. An autogenous vaccine was prepared. As the owner had taken up residence not far from Ashford he (Mr. Danby) had asked Major Oxspring to carry out the injections for him. Major Oxspring had agreed to do this, making little or no comment. At the end of the course of injections, the dog had recently arrived in his surgery. The owner had carried out the bath treatment, Major Oxspring the injections, and the dog was much better: the hyperaesthesia of the skin had disappeared. He felt he ought to thank Major Oxspring for carrying out the treatment!

Most skin diseases ran in phases. One would sometimes get improvement without treatment. The hyperaesthesia was surely what one would expect from an irritation of the skin which had become toxic. By treating it with vaccine alone one would not necessarily get 100 per cent improvement. He thought the treatment should be coupled with baths. Use of the vaccine was solely an attempt to get rid of the infection. One never would eliminate the condition entirely, but one could attempt to keep it under control. It was absolutely essential to repair the damage done to the skin. Mr. Hodgman in his few remarks had mentioned the importance of not overloading the skin.

The acute condition could be treated by removal of the initial cause and by application externally of some suitable lotion. He himself was more interested in trying to treat the chronic case. One lost clients by not being able to clear up these chronic skin cases. He hoped he had made it clear regarding vaccine treatment, chiefly treatment of hyperaesthesia, that he did not run riot with vaccine therapy. He had spent a lot of time with these cases and it cost the owners a lot of money. He would not inject with ordinary vaccine, he insisted on a proper investigation, used an autogenous vaccine and tried to eliminate all forms of contributory causes.

Major Pugh: Could Mr. Danby say why certain chronic cases would often recover if the affected part was shaved and no other treatment carried out?

Mr. Danby: By clipping the part, one seemed to do a tremendous amount of good in many of these cases. Sometimes after shaving the back the improvement that was brought about almost directly was extraordinary.

Major Pugh did not think that this supported the toxin theory.

Mr. Danby: Shaving might stop irritation but it did not get rid of the trouble.

Major Oxspring: He had always understood that shaving improved a dog's condition because the flea lost cover when the hair was clipped.

Mr. Crowhurst: Was there any scientific evidence that a dead vaccine was of any use in animals? Had any experiments been carried out to prove the contrary? What was the percentage of normal dogs affected with B.H.S.? What was Mr. Danby's estimate of the accuracy of the B.H.S. examination of a tonsil swab carried out at different laboratories? Would the same result come back each time? Why could one not use parenteral administration of sulphanilamide or penicillin to eradicate the disease from the animal? Did he consider that nephritis was a common cause of skin disease in dogs? What treatment did he use for this condition? What was the cause of spring and autumn scratching in old dogs?

Mr. Danby: He wished to refer Mr. Crowhurst to his paper. He knew nothing about the subject of dead vaccines and he invited those laboratory workers who were present to discuss the matter.

In an examination of a normal dog, of course one could find B.H.S. What right had one to describe it as a normal dog? It might certainly appear normal to one person, but there might be damage going on somewhere in the body that could be attributed to B.H.S. He was open-minded enough to believe that the B.H.S. was important, but perhaps important in company with other infections—perhaps only important in company with other infections. This was probably one of the reasons why some practitioners did not get the success they wanted with B.H.S. treatment. One might have tried to carry out treatment carefully and still fail for this reason.

The taking of tonsil swabs was one of the most difficult things to accomplish with any accuracy. In some of the short-nosed breeds it was well-nigh impossible. He thought if one took a tonsil swab from a dog which had travelled, or a dog which was sick, one could not get a good answer to one's problems.

If one so much as touched the tongue or another part of the throat one might get a negative result. Other organisms would probably outgrow the B.H.S. In taking swabs the time factor also was most important.

He had examined a kennel of French bulldogs at Taunton. At these kennels there had not been a puppy bred for four years and the owner was Chairman of the French Bulldog Association. Mr. Whitby, the colleague who had called him in, was absolutely certain that there was a B.H.S. infection present. Puppies had been examined and B.H.S. isolated. No treatment had been carried out. He (Mr. Danby) had taken 14 swabs but before he got back to London—a matter of 12 hours—with the exception of one swab all were dry or sterile. That was a point he wished to make. Taking swabs, he considered, was often disappointing although one might be sure of the ground clinically. In this case the owner was delighted to think that there was a ray of hope. Out of the 14 swabs only one was positive.

For the practitioner in the country who obviously had to go back to his surgery and perhaps miss the evening's post, the swabs arriving in the laboratory after it had closed, two days might easily elapse before the swab was examined. It was really not surprising that one often got negative reports. One heard that if swabs were sent to a certain laboratory the results would always be positive. Swabs were not always positive in his experience.

With regard to sulphonamides, he could not claim to know much about them. He had always been told that sulphonamides should only be used during a fever and that their use, once the temperature had dropped to normal, except for a day or so, was valueless. He had very little experience of this and he could not give an opinion about the use of sulphonamides in chronic infections.

He had no hesitation in saying that he considered nephritis a cause of skin disease. Probably some of the cases which did not clear up were the result of nephritis. Often the urine showed evidence of B.H.S. infection in such cases. The condition was caused by streptococcal infection. During the progress of an illness such as distemper one could never clear up the skin condition of nephritis completely.

Mr. Crowhurst had asked about spring and autumn scratching. He thought that this was just a phase of the infection. If one did know of dogs which had spring and autumn or quarterly conditions, one could prevent occurrence or hold down the condition by treatment of the patient with a vaccine.

Mr. S. L. Hignett: He wished to add his quota of thanks to Mr. Danby for his paper, and for the enthusiasm which he had brought along with him. He rose, not as a supporter or an opponent of the B.H.S. school but as a seeker after truth. He and his colleagues had been interested in the theory of streptococcal infection of the dog some years previously. Before the war they had worked on the subject and had been able to recover Group G streptococci from healthy dogs. It was now accepted that Group A streptococci were pathogenic for the human subject and yet they could be isolated from many normal human tonsils. This might also be the case with Group G streptococci in dogs. He believed that there was some other factor which came into the picture.

Their observations had led them to believe that there was definitely something in the suggestion that Group G streptococci did cause breeding troubles in dogs and that they could definitely be responsible for the death of puppies at a very early age. They had actually carried out pathogenicity experiments.

With these Group G streptococci it was possible to kill nearly 100 per cent. of puppies if they were inoculated during the first three days of life. Sulphanilamide administered to puppies by means of a pipette would protect them.

What he found difficult to accept was the claim actually made for the vaccine. He had for some years been extremely interested in the streptococci and he knew of no controlled experiments which showed that vaccines, dead or alive, were of the slightest value for protection against, or treatment of streptococcal infections.

He wondered whether any work had been carried out on the use of penicillin in these alleged B.H.S. infections. If such work had been done, he would at the same time like to know if there had been any controlled experiments.

Mr Danby: He wished to ask if he had *any* supporters. He noticed not a single person, who could say he had experienced *good* results. What he himself wanted to know whilst on the subject was a little matter regarding the question of groups.

Most of those present who had already spoken believed that there was something in the question of loss of whelps. Not one speaker had appeared to doubt that. Was it possible that one had a Group B streptococcus responsible for the whelping troubles? He understood it was not yet possible to type the organisms. All these organisms looked the same and they were all called B.H.S. Some of the failures in treatment might be due to the fact that one used a Group G strain in the vaccine where another living strain should perhaps have been used.

He thought perhaps Mr. Hodgman could deal with the question of penicillin.

Mr. Hignett: The canine streptococci fell into Lancefield's Group G, so that they should all be members of the one group. However, he did not think it mattered in so far as an autogenous vaccine was concerned. One prepared a vaccine from a streptococcus taken from the site where trouble occurred. Therefore, one should have that type of organism in the vaccine.

Mr. Hodgman: He had tried penicillin treatment for skin diseases, but not as controlled experiments. He had experienced cases of acute tonsillitis with high temperatures in which streptococci had been isolated from swabs taken. In these cases he had used penicillin with amazing results. One case in particular he had tried with sulphanilamide, and this had failed to touch it. The dog in question was running a temperature of 106° F. He had managed to get hold of some penicillin by a "back door." The temperature was brought down within about three days. He had been using a dosage of 200,000 units per day; the dog had smelled like a fungus. The treatment cleared up the condition and he thought that the animal was free of infection. More swabs were taken which were sent to the laboratory, reference to which had already been made. The report was negative. He had experienced quite a number of negative replies in reports on swabs he had submitted. Usually the report he got said that the swabs were contaminated. The way he got over that difficulty was to send the dog along to the laboratory for swabbing. In the case he had been describing the answer was first negative. He had taken another swab about two months later from the prepuce and tonsils and received a positive answer. He could not give the exact date, but about a month or two later the dog was again brought into his surgery with a history of being lethargic, off its food, not inclined to walk, etc. The animal had been inoculated against distemper and he could not find much wrong with it. It looked healthy except for a little mucus in the corner of the eye. At the back of the throat there was a catarrhal condition which had already been described to them by Mr. Danby.

He had decided to try the vaccine. The dog was sent to the laboratory, swabs were taken and an autogenous vaccine made. The dog certainly responded to something. He only gave the straight course of vaccination. He had tried the treatment several times since then. He did not like to go as far as Mr. Danby, but on the other hand his was not mere opinion, for he had experienced good results. From the pathogenic point of view he found it impossible to answer Mr. Hignett's question. He did not think vaccines worked, but was giving his experience for what it was worth.

Mr. J. M. Ingram felt he must compliment Mr. Danby on his paper and on the replies that had been made. He did not rise as a supporter, but under Mr. Danby's own classification he remained a "nibbler."

He wished to take Mr. Danby to task on the subject of bathing. He agreed with Mr. Pugh. Mr. Danby had quoted hounds; they were dogs which were called upon to run through water, yet they did not seem to suffer in consequence. He thought that soap was an excellent detergent and had ample experience of its properties in the constant washing of his own arms. His skin had become irritable and sensitive to infection.

With regard to sulphonamide treatment, he had found that sulphonamides would give very good results when an animal was running a temperature. These compounds could only be used locally on the skin. So, for that matter, could penicillin. Recently he had suffered badly with his arms—due to constant washing. The secondary infection that he always got had been reduced about 75 per cent. by penicillin treatment. He believed that there was a protective agent in the skin which was removed by an excessive amount of soap and water. He wished to ask Mr. Danby whether he had used sulphonamide or penicillin locally, or by injection.

Mr Hodgman had commented on the fact that greasy lotions and ointments should not be used for wet eczema. Had Mr. Danby used a new preparation of B.D.H. which gave a matt surface when one had finished application?

Mr. Danby: He could not see what good local injection of penicillin or sulphonamides could do. Such injections did not help one to deal with the skin trouble. There was a lot of repair but nothing to destroy. One had to remember that it was a question of dealing with toxins which could not be affected by local applications.

If Mr. Ingram was talking about local infection and excoriated surfaces in connection with sulphonamide and penicillin ointments, he agreed with him. The type of case which had been under discussion was the chronic condition which occurred year after year, symptoms including loss of hair and hyperaesthesia.

Mr. Ingram: Was it not possible to treat such cases by crucial incision?

Mr. Danby: He had experience only of operative measures on circumscribed areas of cellulitis. He had never felt inclined to experiment with such cases, mainly because he had had good results from treatment he had already mentioned. He could not really talk much about the use of these things. In sub-acute conditions where one had got an early invasion, he did use penicillin ointment with great success. He could not claim to have used the B.D.H. drug.

He was still waiting for Major Pugh to speak on the question of natural oils.

Major Pugh: He thought he might be called old-fashioned but he thought if one took a normal dog and handled it, there was a definite grease in the skin. If one bathed the animal in a detergent, soap, etc., the coat became dry and hard. If one went on constantly removing the grease secreted by the glands of the skin, it seemed to him one must remove something which was a definite protection to the skin. He thought, too, that it was a well-known fact in human cases that some people could not wash their hands in soap alone, for fear of getting spots. He believed one washed some protection from the surface of the skin with too much bathing.

To return to the outbreak Mr. Danby had visited in Taunton, where there had been trouble for two or three years—he (Mr. Danby) had not elaborated on all the chronic skins that were present. Major Pugh said that he had seen many such outbreaks of breeding troubles in kennels and thought there should be a large percentage of chronic skins in such a case.

Mr. Danby: He did not think Mr. Pugh had answered the question about grease at all well. Could any harm be done by bathing? Was any permanent harmful condition set up as the result of bathing? Surely one should look deeper into the question. He was absolutely certain in his own mind that this desire to keep soap and water from a dog was the result of propaganda from the breeders, particularly when it concerned dogs which appeared at shows. Breeders were apt to say that water on a dog's coat would spoil it for show purposes. Was the profession going to agree to the breeders' show standards or did it intend to keep dogs fit? Did bathing do any harm, in fact? Washing a dog with soap and warm water and during the process of drying carrying out a form of massage to the skin was essential in bringing back health to parts, and thereby repairing the damage that had already been caused by the toxins of the infection.

Finally he had not mentioned anything about the skins of the dogs at Taunton because he was not called in to deal with a skin disease. He had mentioned the case as an example of the difficulty in getting truthful results from the swab. Incidentally, the skins of the dogs were extraordinarily bad in this case, one extremely so was covered all over with an exfoliating dermatitis. The characteristic spread of the condition was almost diagnostic of the

trouble. There were six bitches and about 14 dogs whose skins were all affected in some degree or other. It did not happen to be in his province to treat the dogs. No doubt Mr. Whitby had done this.

Mr. WRIGHT congratulated Mr. Danby and said he thought he was one of Mr. Danby's supporters: not, however, on the question of the B.H.S. infection in dogs because he had never used the vaccine for skin diseases. But he wished to endorse most strongly Mr. Danby's ideas of bathing dogs. He had experienced better results from bathing when local treatment had failed.

The method of treatment which he found most successful had been to bath the dog, rub it well and dry it and then rub in cold cream containing no antiseptic. He had found this method particularly useful.

There was one question he would like to ask regarding B.H.S. infection. What proportion of cases, roughly, did Mr. Danby find in general practice which could be attributed to the infection, compared with the number of cases that were caused by external parasites, etc.? He himself thought that apart from the ordinary conditions, which occurred in the spring and autumn, it was surprising the number of dogs in which one found it impossible to discover some external parasite, whether it was lice or fleas.

Mr. DANBY: He wished to reply to Mr. Wright by giving him some illustrations from his experience during the war. At the beginning of the war he had been deprived of his only supporter, his laboratory technician. He could not get any support for the B.H.S. theory from the War Office and had, therefore, determined to stand his ground and wait until he had accumulated enough evidence to go straight ahead. He was eventually allowed full facilities for investigation after the B.H.S. had been isolated and demonstrated on a number of occasions. He had a wonderful opportunity given him of working on the subject and was allowed ample staff, time to take swabs, scrapings, etc. He had kept records of the first 2,000 dogs in his care. Of 380 skin infections, there were no cases of mange or ringworm, but 121 cases of positive B.H.S. swabs. These latter cases had reponded well to vaccine therapy. In cases of intense pruritus irritation generally subsided when attention was directed to such things as bedding. However, the diet factor had to remain unchanged; no variation was possible. Cases were improved by regular baths and massage. The parasite percentage among these cases was nil.

Mr. FROST: He wished to ask Mr. Danby two questions, mostly in relation to the time and origin of infection. Was the original streptococcal infection in all cases contracted in extremely young puppyhood? In what proportion of cases did the initial infection occur at an adult age? He wished to know if he was wrong about the initial infection occurring in young puppyhood. What proportion of cases elicited a history satisfying one that the animal had experienced symptoms in puppyhood, or that it had an established infection at the time of birth?

Mr. DANBY: It was not known whether the disease was contracted *in utero* or whether it was contracted immediately after birth from licking discharges, etc. He was not prepared to give any information. His colleague was rather of the opinion that the trouble was caused from licking discharges after birth. He thought that it was safe to suppose this. The condition often occurred after what might be described as a distemper, but during the course of the virus infection one often had secondary infections which were far more important and damaging than the virus distemper itself.

Major OXSPRING: He agreed that it was most interesting that B.H.S. had been found in throat, vaginal and prepuce swabs. Might he ask whether Mr. Danby had taken swabs of normal dogs?

Mr. DANBY: The figures he had quoted were those for dogs which he considered affected. He could also give figures of dogs which he considered were unaffected.

Major OXSPRING: He believed that oil in dogs' coats was a natural protection against cold and moisture. He did not think anyone knew why Nature had provided it as an antibacterial. He had been interested in and had much to do with foxhounds. Amongst these animals he had seen some very itchy skins but did not think any were caused by the kennelman bathing the foxhounds. He had not seen any dogs which were regularly bathed which appeared to have a greater predisposition against skin diseases.

Mr R. C. U. FISHER: He wished to enter into the subject of natural oils.

There was no doubt that a natural oil was present in the skin. There was nothing to indicate that it prevented disease or that its absence caused disease. He agreed with Major Oxspring that it was there purely as a protection against cold. People said that the African native smelt like a polecat and the African native thought the same about them. The native did not believe in washing. His skin was shiny and was definitely a physiological factor. On mountain trips, 1,200 or 1,400 feet up, the white man got under blankets and shivered in a tent but the natives did not seem to suffer from the cold in the same way. The oil seemed to be just a natural protection and was nothing to do with disease.

One usually used soap in washing and soap was an irritant. In the absence of natural oil, which was a protection from cold—for instance, after a hot bath—one was more likely to catch infection. He did not believe there was anything more in it than that.

Mr. Danby had suggested that in spring and autumn scratching there was an underlying infection of B.H.S. This raised a rather interesting hypothesis. Cattle got ringworm in spring and autumn. Could anyone suggest that B.H.S. was concerned in that?

Mr. MCDONALD: It seemed a pity that the meeting should close without someone agreeing with Mr. Danby. He would like to know how much faith Mr. Danby placed in the vaccine. It was recommended that one ought to continue with the vaccine for about 15 months, giving a course of five injections every three months. He had been concerned in one outbreak in which these stipulations had been carried out carefully. He had thought afterwards that it might have been better to stop some time sooner than he did because he was not getting results. Having started treatment he had carried it through with no great improvement. At what stage would Mr. Danby advise concluding treatment with vaccine if results were not good?

As a matter of interest he wished to report that in the days before penicillin was plentiful he had managed to get hold of some synthetic penicillin and the results in the cases where it was employed were remarkable. The penicillin really seemed to cure the condition. He realized, of course, that this was an isolated case.

Mr. DANBY: He thought first of all it was necessary to appreciate that if the infection was established and it really was the cause of the trouble, one should admit that one was only on the fringe of investigation, that there was a tremendous lot to learn and that one might have been "barking up the wrong tree." He thought there definitely was a time to stop vaccine treatment, and this was when, after three or four courses, no results were being obtained. Probably it would become apparent that there was a chronic condition established which could not be treated by any vaccine: for instance, a surgical condition of the uterus—he did not know whether any work had been done on evploring the uterus from the vagina.

There was only one solution for clearing up these cases and that was surgical interference.

CLINICAL COMMUNICATION

Penicillin Therapy in Actinomycosis in Cattle

By

E. F. LEWIS, M.R.C.V.S.

ROYAL VETERINARY COLLEGE, STEYNING

Since June, 1946, six cases of clinical actinomycosis involving upper and lower jaws have been treated with penicillin. The following examples are illustrative of the results obtained.

CASE 1: Six-year-old pedigree Shorthorn cow.

History and Appearance.—The whole of the left half of the lower jaw had been slowly enlarging for several months. At the time of examination two molars were displaced and mastication in general was difficult. The animal had begun to lose condition rapidly. Iodides had been tried but had merely slowed the pathological process.

Treatment.—One million units of penicillin in oil and wax suspension were injected with an all-metal syringe into eight sites evenly distributed over the enlarged area. A stout needle was easily pushed into the tissue but injection was difficult. This was continued as the needle was withdrawn; 500,000 units were given 24 hours later and a similar dose four days later.

Result.—As expected, this was not spectacular but in four months without further treatment, the jaw returned to normal size. The displaced teeth were extracted early in treatment and soft foods had to be provided over the same period.

CASE 2: Cross-bred red poll cow, seven years old.

History and Appearance.—The right horizontal ramus had begun to enlarge over the previous two weeks. The swelling was hard and slightly tender on pressure but did not interfere with mastication. An aqueous solution of sodium penicillin was injected into three sites as above, 500,000 units in all being used. Two days later the swelling was smaller in size but the dose of penicillin was repeated. Without further treatment the enlargement disappeared in ten days and has not recurred after three months.

The other four cases developed along similar lines.

CONCLUSIONS

1. Solutions of penicillin are of value in the treatment of bovine actinomycosis when injected, early, into the actual lesion.
2. There is no advantage in the oily suspension over the aqueous solution which is easier to inject and diffuses more rapidly.
3. The injections must be disseminated as widely as possible.
4. In long-standing cases, results will be slow.
5. An all-metal or reinforced syringe must be used.

SPRAY CONTROL OF TSE-TSE FLY AND TRYPANOSOMIASIS

Dr. P. J. du Toit, Director of Veterinary Services, Union of South Africa, is in this country and has brought with him a very interesting colour-sound film showing details of a large-scale experiment to control trypanosomes and the tse-tse fly by spraying the Bush with DDT from aeroplanes.

As intimated in our Notices Column, it has been arranged that the film will be shown and a discussion will be held at a meeting at 2.30 p.m. on Wednesday, September 24th, at the London School of Hygiene and Tropical Medicine.

If the tse-tse fly could be controlled enormous tracts of territory in Africa now unproductive could be made available for the supply of urgently required human and animal foodstuffs that could be exported to other countries.

Mr. HODGMAN: He thought that Mr. Danby had received a good grilling. He would ask Mr. Crowhurst to express the meeting's thanks.

Mr. CROWHURST: He wished to thank Mr. Danby for the great trouble he had taken in preparing his paper, and also the way in which he had replied to questions in such an extremely competent fashion. Mr. Danby had mentioned at the beginning of his paper that it was the first time he had been called upon to give one to a society. He hoped himself that it would not be the last paper Mr. Danby would give and that the experiences of the afternoon would not deter him from giving others.

Mr. DANBY: For the first time in 45 years he had heard himself speak with what he considered a certain amount of authority. He only hoped he had managed to give the members some food for thought and even brought some of them to his way of thinking.

THE VETERINARY RECORD

September 6th, 1947

THE VETERINARY PROFESSION AND THE CRISIS

THE Government has produced an agricultural programme which has been warmly welcomed by the farming community. The task the British farmers have to undertake is a formidable one and it is significant that it is to livestock that the Government are rightly looking for almost all increase in output. The farmers are expected to grow increased wheat and barley and other grain crops and in 1948 they will be allowed to keep 20 per cent. for feeding to livestock. There are to be subsidies for heifer and steer calves reared.

A new campaign to improve grassland and to conserve herbage in its most nutritious form as silage and dry grass is to be welcomed, but an essential factor is that the stock shall be available to utilize these products to the best advantage to provide food for the nation. The farmers have been given the price incentive in full measure, but they have been left with heavy problems of lack of feedingstuffs, particularly until next year's harvest, inadequate machinery, inadequate labour, lack of rural housing and the need to provide capital. Promises have been made in respect of housing, machinery and some provision of foodstuff from abroad. The assured market for agricultural products will undoubtedly make the provision of capital a much easier burden.

The decision not to direct labour to agriculture is a wise one. The agricultural community are the "salt of the earth" who are used to facing and doing the job in hand. The incentive of higher wages which will now be possible should entice men of the right type to the land and restore to the countryside the yeoman population, which has been seriously depleted by the drain to the towns. At last the skill of the agricultural worker is being placed on a proper and satisfactory basis in comparison with those in industry. British agriculture can and will meet the demands made upon it.

At this time of economic crisis, the veterinary profession is fully alive to the vital importance of its own place in the Government plan. The Association which, in 1939, started campaigning against the failure to apply the veterinary scientific knowledge available on the farm, and which carried through the collation of scientific data available and the preparation and eventual institution of the Panel scheme for dairy stock, can now appreciate to the full the value to agriculture of its tremendous efforts. All its subsequent work in connection with pig diseases, sheep diseases, hill sheep farming, parasitism, calf diseases, housing of stock, water supplies, tuberculosis control and artificial insemination, published as a series of reports, will prove of the utmost value in the demands which will be met by the profession.

We have persistently expressed our dissatisfaction with the present lack of application of veterinary science, with the failure to provide adequate facilities and money for research and the training of research workers, improved educational facilities, post-graduate courses, or the colleges for the proper training of students, to collect accurate data of the incidence of disease and last, but not least, to utilize the profession to the fullest possible advantage in the interest of the livestock industry and the nutrition of the people.

The Minister's statement contained no reference to the tremendous losses induced by disease. This can no longer be considered a minor matter. It is of vital importance that the attention of the Government should be directed with full vigour to the prime necessity of co-ordinating and initiating plans for the maximum possible application of the veterinary scientific knowledge available to-day to the herds and flocks of the country. There are many difficulties, and undoubtedly shortage of trained personnel will again be raised as a great factor militating against this suggestion. There can be no doubt, however, that when the "dove-tailing" of long and short term planning can be organized to permit the application of disease control measures known to be efficient, while our herds and flocks are at their lowest numerically, it will have tremendous effect. The co-ordination of efforts of the profession, increase in output from our colleges, the provision of proper laboratory facilities and the encouragement of specialization can all be organized in a rational way, provided goodwill and proper co-operation is established between the Government Departments concerned and the veterinary profession as a whole, both whole-time and part-time.

The veterinary profession is ready and willing to play its part under proper conditions in the execution of these developments. It has secured during war years the ear and confidence of the farmer. Our daily contacts as an integral part of the livestock industry are such that we can play a vital part in the dissemination of information, in the spreading of knowledge and the application of existing knowledge and new methods to great advantage.

The shortage of trained animal husbandry experts can be met by utilizing the veterinary profession in its proper sphere in a programme for improved animal health.

The Minister has called for "combined operations" by the Government Departments concerned and particularly by farmers themselves and their employees. It is reasonable to anticipate that such a call will be made to the veterinary profession. Our present differences are capable of solution, particularly in view of the independent Report of the Select Committee on the Estimates. In the same way that the farmer requires tools, we shall require the tools. Co-ordination of effort must be planned by the Animal Health Division. Biological products, essential drugs, transport and diagnostic laboratory facilities must be made available. The co-operation of farmers is assured, and the support of the N.F.U., R.A.S.E. and other agricultural bodies has long been behind an improved livestock policy. The profession is ready and willing to play its part to the full.

FOWL PEST CHECKED

Fowl pest, which after 13 years' absence spread rapidly throughout the country since it was first reported in March, appears to have been checked by the Ministry of Agriculture's drastic slaughter policy.

Since the first outbreak at Upper Weston, near Bath, 693 cases have been reported in England, leading to the deaths of tens of thousands of poultry.

By midsummer it appeared that the disease had got such a firm hold that it would spread throughout Wales and Scotland as well as England. Fortunately, by slaughtering affected flocks, the disease was stopped before it reached the Scottish border, Durham being the most northern county to report outbreaks.

Wales was not so fortunate the disease breaking out in Caernarvon and Glamorgan, but not seriously, only 14 cases being reported, including those which occurred in Monmouth.

Latest figures available show that the 51 outbreaks for August is less than a quarter of the number reported in June, and one-half of the number for July, when 112 outbreaks were confirmed.

ANNOTATION

Newcastle Disease

Fowl plague, Newcastle disease and infectious laryngotracheitis are the three most serious virus diseases of fowls and their differential diagnosis was described by Doyle (1933a). Fowl plague is a highly infectious disease; death is so rapid that few or no symptoms are usually seen and the mortality is nearly 100 per cent. At *post-mortem* examination petechial haemorrhages are usually found on the lining of the proventriculus, the inner surface of the sternum, the pericardial sac and heart muscle. The blood is always infectious and fowls die 18 to 48 hours after inoculation of the virus, but pigeons are usually resistant to infection.

Birds suffering from infectious laryngotracheitis exhibit a characteristic respiratory symptom during which the head is elevated, the neck extended and the air drawn in through the half-opened beak with a loud wheezing sound. During expiration the head is lowered, sometimes until the beak rests against the chest, and there is frequent, violent coughing during which masses of clotted blood and mucus may be expelled. The rate of mortality varies in different outbreaks from 5 to 90 per cent., with an average of about 20 per cent. The disease spreads rapidly and usually 50 to 90 per cent. of the flock are affected. In artificially infected fowls the incubation period is five to 12 days and recovered birds may carry the virus in the respiratory tract for 52 days. At *post-mortem* examination all organs appear normal with the exception of the superior larynx, the trachea, the inferior larynx and the bronchi. The mucosae of these organs are inflamed and their lumen wholly or partly filled with mucus and clotted blood. In more chronic cases the mucus becomes caseous.

In Newcastle disease there is a yellowish-white, watery diarrhoea with a characteristic, nauseating smell. In the majority of affected birds there is a thick mucous discharge from the nostrils and a varying amount of frothy exudate in the mouth occasionally hanging in threads from the end of the beak. The mortality often approaches 100 per cent. and in the later stages there may be a paralysis of the legs. About 70 per cent. of naturally infected fowls exhibit respiratory symptoms similar to those seen in laryngotracheitis, but at autopsy, although petechial haemorrhages are often present, the characteristic lesions of infectious laryngotracheitis are absent. More recently a rather characteristic haemorrhagic necrotic involvement of the intestinal lymphoid patches has been described by Jungherr, Tyzzer, Brandly, and Moses (1946). The discharges and most organs are infective but the blood is not so regularly infective as in fowl plague. Following inoculations there is an incubation period of five days and birds are sick for one to three days or even longer before dying; repeated passage does not shorten the course of the disease. Doyle found pigeons of all ages insusceptible to Newcastle disease virus, but some workers have found old birds less susceptible.

In an extensive review of the literature Beaudette (1943) states that the disease was first described in the Dutch East Indies in 1926. It is now widely spread in India and the Far East and outbreaks have occurred in Australia and Kenya. An outbreak near Newcastle-on-Tyne in 1926, was described by Doyle (1927), who was the first to demonstrate that a virus was the causal agent (his article contains excellent illustrations of diseased birds). During the next six months the disease was diagnosed in eleven counties in England and Wales and the mortality was 98 to 100 per cent. No further outbreaks occurred until the autumn of 1933, when 6,000 fowls on one farm in Hertfordshire were affected; all died or were destroyed and no secondary centres developed. After giving this description of outbreaks in England, Gordon & Asplin (1947) go on to say that the country was free from the disease for 13 years until February, 1947, and from that time until April 26th over 70 outbreaks were diagnosed in 23 counties. Birds in affected flocks have been destroyed under the Fowl Pest Order, but the evidence indicates that the natural mortality would approach 100 per cent.

According to Beaudette (1943), Newcastle disease had not been described in Europe before the outbreak of war, but since then it has been reported in Palestine and Syria, and serious epizootics have occurred in Italy and Germany (Gordon & Asplin, 1947; Brandly, Moses, Jungherr & Jones, 1946). The latter authors also describe the dissemination of the disease in Africa. Beaudette (1943) does not mention the occurrence of Newcastle disease in the U.S.A., but a disease known as avian pneumoencephalitis has been known to exist in California for at least ten years and outbreaks have now been reported in at least 29 States. In young chicks the disease usually begins with respiratory symptoms similar to those seen in bronchitis or laryngotracheitis. Nervous symptoms usually develop a few days later; there may be coarse tremors of the head, ataxia and staggering. The mortality rate is 20 to 60 per cent. In adult fowls the disease also begins with respiratory symptoms. There is a sudden drop in egg production but the mortality is usually low (Beaudette, 1946). Because of the low mortality and other features no one suspected the aetiological relationship of this condition and Newcastle disease until 1944, when Beach showed that the causal virus was immunologically identical with the virus of Newcastle disease.

The comparative pathology of fowl plague and Newcastle disease were studied in detail by Jungherr *et al.* (1946). In both there are multiple necrotic foci in the visceral organs and central nervous system. In Newcastle disease there are proliferative changes leading to interstitial pneumonia, complicated by exudative phenomena, or to primary encephalomyelitis. Brandly, Moses, Jungherr & Jones (1946) found that viruses from various parts of the world were similar immunologically and in their behaviour in other laboratory tests. They found that the Newcastle disease virus was much more stable than fowl plague virus and Doyle (1933b) found that bone marrow and muscle of chilled carcases may be infective for six months.

On the basis of various laboratory studies Burnett (1942) concluded that the Newcastle disease virus might belong to the influenza group, and Burnett (1943) described an accidental laboratory infection in man with Newcastle disease virus.

There seems to be good evidence that the classical Newcastle disease described by Doyle originated as a "new disease" in the Far East in 1926 or not long before that time. It is very unlike influenza as this occurs in man at the present time in that the main lesions and symptoms are intestinal. It is of great interest, however, that the American strains of the virus, although immunologically similar to the English strains, are much more strongly pneumotropic. The disease is also less fatal in adult birds and might well escape notice under primitive conditions. These facts indicate that the pathologic propensities of the virus are still labile. Brandly, Moses, Jungherr and Jones (1946) showed that one American virus was sometimes lethal for mice, but were unable to carry out serial passage by intracerebral inoculation with avian virus. Apparently no attempt was made to use the intranasal route although one might expect to obtain more suggestive results with these pneumotropic strains than were obtained by Burnett (1942). Komarov and Goldsmit (1946) appear to have attenuated the virus for fowls by intracerebral passage in ducklings. Reagan *et al.* (1947) carried an American strain through 12 brain passages in the Syrian hamster. Those inoculated hamsters which developed nervous symptoms died and the work is being continued in the hope that a strain attenuated for the chicken and thus suitable for vaccination will be produced.

The numerous earlier attempts to provide vaccine against Newcastle disease were reviewed by Beaudette (1943) and by Brandly, Moses and Jungherr (1946). Very young birds do not respond well to vaccination and those from immune hens not at all. This is because they are protected by immune bodies in the yolk-sac (Brandly, Moses & Jungherr, 1946). Vaccines inactivated by formalin were the first to give promise, and Haddow and Idnani (1941) reported encouraging results with formalin-treated vaccine absorbed on aluminium hydroxide. Iyer and Dobson (1941) found that virus inactivated in the presence of crystal-violet failed to produce immunity, but vaccines inactivated in the presence of anisole have been reported effective. Iyer and Dobson (1940) found, perhaps rather surprisingly, that passage of the virus on the chorio-allantois reduced its virulence for the fowl and they were able to produce a good immunity with attenuated virus. This attenuation was not confirmed by Acevedo and Mendoza (1947), but was by Brandly, Moses, Jones and Jungherr (1946) and by Haddow and Idnani (1946). The latter workers concluded that an alumina adsorbed virus was too expensive and not suitable for use under Indian conditions and they tried to develop an attenuated strain of virus which is always cheaper than an inactivated vaccine because the dose is much smaller. They produced attenuated strains by passage in pigeons and ducklings, with the aid of occasional egg-passage, which have given promising results on a small scale. The ordinary egg-attenuated strain was more virulent but was available and has been used to vaccinate over 100,000 birds of one month and older with a casualty rate of 2½ to 6 per cent. It was found that inoculated birds were resistant to reinfection within 48 to 96 hours, which was probably due to "interference." The same phenomenon was observed by Brandly, Moses, Jones & Jungherr (1946), who carried out extensive experiments on immunization and found that although the virus titres were lower in the tissues of embryos than in the extra embryonic fluid the tissues were equally antigenic when suitably inactivated. These inactivated vaccines only produced an immunity of short duration and it was concluded that the safest and most effective method of immunization would be formalin

† See Erratum p. 580

inactivated vaccine followed by chick-embryo virus if the spread of the disease ever justified the use of vaccine.

JOHN FRANCIS.

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AGRICULTURAL EDUCATION IN SCOTLAND

The governing bodies of the three Scottish Colleges of Agriculture, the Edinburgh and East of Scotland College of Agriculture, the North of Scotland College of Agriculture, and the West of Scotland Agricultural College, after considering the recommendations of the Committee on Agricultural Education in Scotland concerned with courses leading to Diplomas, have decided that in future all students taking courses leading to their Diplomas will, if successful, be awarded Scottish Diplomas, *i.e.*:—

The Scottish Diploma in Agriculture (S.D A.),
The Scottish Diploma in Dairying (S.D.D.),
The Scottish Diploma in Poultry-keeping (S.D.P.),
The Scottish Diploma in Horticulture (S.D.H.), and
The Scottish Diploma in Dairying Technology (S.D.D.T.).

A uniform standard of examination will be maintained and no single course will normally extend beyond two years. Although the courses for main subjects will follow a uniform pattern at all three Colleges, in the later stages of the courses each College will pay regard to the type of husbandry practised in its own area. The new Scottish Diplomas will be the only Diplomas awarded by the Colleges.

It is felt that the new arrangements will do much to raise the already high prestige of agricultural education in Scotland and will secure for successful students wider recognition than previously of the value of Diplomas awarded by the Colleges.

It will be possible in certain circumstances for students to arrange their courses so as to enable them to sit examinations for dual Diplomas. Honours will be given to those who reach a sufficiently high standard. Prospective students can obtain full particulars of the courses from the secretaries of the respective Colleges.

* * * * *

WEEKLY WISDOM

First-rate work requires freedom; not only that freedom to publish and discuss results and methods which may for reasons of security be denied to the awkwardly placed workers on atomic fission or—one surmises—certain aspects of bacteriology, but freedom to work in directions apparently unpromising, to follow up "hunches" without having to justify them in triplicate, to come and go between laboratory and conference, and to do, in short, a lot of things which by usual departmental standards look suspiciously like waste of time.—The Economist.

REVIEW

[**Hobday's "Surgical Diseases of the Dog and Cat."** Fifth edition: edited by J. McCunn, M.R.C.V.S., M.R.C.S., L.R.C.P. Baillière, Tindall & Cox, 8, Henrietta Street, Covent Garden, W.C.2. Price £1 1s.]

The present reviewer, not being familiar with editions one to four of this work, is admirably placed to review it from the point of view of the student for whom it is, presumably, mainly intended; and to assess its value to the single-handed practitioner, who still forms the bulk of the profession. Whilst welcoming the book for its comprehensiveness, one must express regret that the Editor has not been more drastic in cutting out dead wood and thus making room for fuller details of modern procedures. The space devoted to full descriptions of abstruse conditions might perhaps have been reduced, and more attention paid to the commoner ailments and operations. There are, moreover, certain points of detail which might be added or altered in subsequent editions. For instance, not enough emphasis appears to be laid on the *immense* value to the single-handed surgeon of intravenous anaesthesia. Again, although much of the work goes into detail as to procedure, one feels that a chapter or section on surgical technique in general would strengthen the book, as descriptions of various techniques (*e.g.*, types of suture) used in the same operation, have to be sought under different headings. There are also some statements which cannot be allowed to pass unchallenged, *e.g.*, "cutting instruments, such as knives and scissors, should not be boiled except in emergencies." It is surprising, also, especially in view of the stress laid throughout on the value of antiseptic measures as adjuncts to asepsis, that there is no mention of the method of treating operation wounds with sterilized sulphanilamide or with penicillin—itself a return to Listerian principles—so universally practised nowadays. One would have thought, too, that the chapter on fractures called for a description of the "slab" plaster of Paris technique; and greater detail in describing the application of the Stader splint would be welcome in a future edition.

In so far as the foregoing review is adversely critical, the criticisms are mainly of details. The work is, and bids fair to remain, a standard; and should find a place not merely on the shelves but in the hands of the practitioner, who will find, even where disagreement exists, that it stimulates him to better work

Questions and Answers

The submission of questions for inclusion in this column will be welcomed: they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.
All communications should be addressed to the Editor.

Gangrenous Mastitis of Ewes

Q. CCXIII.—*An acute fatal gangrenous mastitis (black garget) is commonly seen at lambing time in flocks of ewes on arable land in this district.*

None of the methods of treatment (stripping out of the affected half of the udder, hand rubbing, intramammary infusions of sulphanilamide L.S.F. or penicillin) has prevented death from toxaemia occurring within 24 hours.

What are the best preventive measures? Is staphylococcal toxoid of use and what treatment should be given to established cases?

A.—The type of mastitis referred to is commonly caused by *Staph. aureus* and, is dealt with in the N.V.M.A. publication on Disease of Farm Stock, Section II, "Diseases of Sheep," March, 1944. The view is expressed therein that "sheep with a relatively high concentration of antitoxin in their sera are resistant to experimental udder infection with the organism." Vaccinating pregnant ewes twice, with staphylococcus toxoid, is probably the only line of attack likely to give results though economically it is of doubtful value, in view of the markedly low evidence of the disease. Sulphapyridine has been reported on favourably by some practitioners. The probable source of infection is the skin of the udder and teats (and the shepherd's hands). As *Staph. aureus* is penicillin sensitive, *in vitro* it might well succumb if the udder of the ewes was cleaned and dressed with penicillin cream during the few days prior to parturition. The reduction of the flock fly population should also be considered, the escutcheon and belly of the ewe being swabbed with a solution of "dip" containing gammexane.

As organisms other than staphylococci may cause acute mastitis in ewes, it would be advisable to send up a sample of milk from the first case to a laboratory, for identification purposes.

Blood Transfusions

Q. CCXIV.—*Where is it considered desirable to give blood transfusions in cattle and horses? How can it be determined whether the blood of the donor is compatible with that of the recipient, and what steps can be taken in cases where shock occurs during a transfusion?*

A.—The transfusion of blood from a normal healthy animal into a sick animal is considered desirable in the following conditions:—

(1) Severe haemorrhage—such as may follow the severance of an artery or *post-partum* haemorrhage— when the transfusion of whole blood is indicated.

(2) Anaemia, caused by factors other than haemorrhage, *e.g.*, red water in cattle, where success has resulted from the use of whole blood transfusions. In the later stages of purpura haemorrhagica of horses, when the red cell count is markedly reduced, the transfusion of whole blood is a logical treatment; in the writer's opinion, however, the transfusion of serum or plasma would be more beneficial in the early stages of this condition.

(3) Shock, resulting from wounds, burns or other causes, is more advantageously treated by the transfusion of serum or plasma, in order to reduce the haemoconcentration.

Compared with human blood groups, those of horses and cattle are not so well defined. The agglutinins of horse and ox blood appear to produce agglutination far less readily when mixed with their corresponding agglutinogens. At least three blood groups are said to occur in cattle and six in the equine; but despite the presence of these groups, it is only occasionally that severe or fatal reactions result from the transfusion of blood of undetermined groups—particularly in cattle. In fact, on occasions, blood which was incompatible *in vitro* has been deliberately used for transfusion with only a mild reaction resulting.

The mixing of drops of blood from the recipient and proposed donor on a white tile or microscope slide and examining for agglutination is an unreliable test for determining the compatibility between two bloods. Rouleaux formation (pseudo-agglutination) very often occurs and it is often difficult to distinguish this from true agglutination. The complication of rouleaux formation can be largely overcome by using a 1 per cent. suspension of donor's red cells in saline and mixing it with serum of the recipient. The red cell suspension is prepared by centrifuging a sample of donor's blood, and transferring ½ c.c. of the red cell mass into 50 c.c. of physiological saline. Ten drops of the recipient's serum and two drops of the red cell suspension are mixed in a small tube and centrifuged at 2,000 r.p.m. for three minutes. Upon shaking the tube after centrifugation, a positive agglutination is shown as clumps of red cells swirling *en masse* through the serum, whereas in the absence of agglutination an immediate uniform suspension occurs upon agitation.

Cold environmental conditions must be avoided where the test is being carried out, since the presence of so-called "cold agglutinins" which are present in blood, will cause a false agglutination.

Notwithstanding the moderate safety with which blood of an undetermined group can be used for transfusion in cattle and horses, severe or fatal reactions can and sometimes do occur, and it would certainly be advisable to use only blood that shows no agglutination with the recipient's serum *in vitro*.

The writer has had no experience of shock in animals as a result of incompatible blood transfusions, and can only recommend the measures used in human cases, *viz.*:—

(*a*) Immediate cessation of the transfusion as soon as any signs of shock appear, *i.e.*, in animals, restlessness, defaecation, pawing of the ground and, later, sweating.

(*b*) The administration of water by stomach tube together with potassium citrate, to ensure a copious alkaline urine—since the haemoglobin products of haemolysis tend to be deposited in the kidney in an acid medium. (The urine of herbivores is normally alkaline.)

(*c*) The transfusion of a compatible blood is said to produce immediate relief in human cases.

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"Heat" and the Racing Greyhound

Q. CCXV.—*How long after being in heat may a greyhound bitch be raced in track?*

Does racing during the period of heat damage the bitch, or affect her stamina for future racing?

A.—The greyhound bitch, having been in season, may be raced on controlled tracks at any time after she has attained a gradeable pace and if, in the opinion of the veterinary surgeon, she is fit to race.

The older school of greyhound trainers did not consider that such a bitch was fit to appear on a track until at least twelve weeks had passed after coming in season. The writer has tried on two occasions to put an in-season bitch to work four weeks after breaking down. In each case the pace attained was so slow that the attempts were abandoned. In the writer's opinion persistence would certainly have damaged the bitches and, by overstrain, ruined their stamina.

No harm comes to a bitch put to work at eight weeks after coming in heat.

NOTES AND NEWS

Diary of Events

Sept. 10th.—N.V.M.A. Committee meetings at 36, Gordon Square, W.C.1: Parliamentary and Public Relations 11.30 a.m.; General Purposes and Finance, 2 p.m.

Sept. 11th.—Ditto: Veterinary State Medicine, 10 a.m.; Organizing, 2 p.m.; Technical Development (running concurrently with Organizing), 2.30 p.m.; Home Appointments, 3.45 p.m.

Sept. 12th.—Meeting of Council, N.V.M.A., at the Connaught Rooms, Kingsway, W.C.2, 11 a.m.

Sept. 17th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1. (*Members are asked to note change from second to third Wednesday in the month, for this meeting only.*)

Sept. 18th.—Meeting of the North Wales Division, N.V.M.A., at Llangollen (The Armoury), 2 p.m.

Sept. 19th.—Meeting of the Lancashire Division, N.V.M.A., at Bolton (Town Hall), 3 p.m.

Sept. 23rd.—Meeting of the Southern Counties Division, N.V.M.A., at Blandford, Dorset (Crown Hotel). Full Notice will be given later.

Sept. 24th.—Dr. P. J. du Toit at the London School of Hygiene and Tropical Medicine, 2.30 p.m.: DDT and the Aeroplane in the Control of the Tse-tse Fly and Trypanosomiasis in South Africa.

Sept. 25th.—Meeting of the Derbyshire Division, N.V.M.A., at Thurgarton, Notts (Boots' Establishment), to follow Luncheon at 1.30 p.m.

Sept. 26th.—Meeting of the Association of Veterinary Teachers and Research Workers (Southern Region), Royal Veterinary College, London, N.W.1, 11 a.m.

Sept. 27th.—Extraordinary General Meeting of the Association of Veterinary Inspectors, at the Royal Veterinary College, Camden Town, London, N.W.1, 2 p.m.

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Revision of Rates for Classified Advertisements

The attention of those concerned is directed to the announcement, appearing on advertisement page vi of this issue, in which are detailed new rates for the insertion of classified advertisements in *The Veterinary Record*.

The introduction of these increased charges—also of an addition to the Box Number fee—has been decided upon, with regret, as one of the measures essential to meet the very heavy increase in the cost of printing the journal of the Association.

The new rates specified are payable in respect of all professional and other "small" advertisements published in this and subsequent issues.

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Guide to Veterinary Surgeons Officiating at Small-animal Shows

The above has been printed as N.V.M.A. publication, No. 13, and copies are now available to members of the Association on application to 36, Gordon Square, London, W.C.1.

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PERSONAL

Colonial Veterinary Service Appointments.—The appointment is announced of Mr. D. K. Thomas, M.R.C.V.S., as Veterinary Officer, Tanganyika Territory, also of Mr. A. W. Vaughan, M.R.C.V.S., Veterinary Officer, Cyprus, as Veterinary Officer, St. Christopher-Nevis, Leeward Islands.

Zoo Appointment.—Mr. George S. Cansdale has been appointed Assistant Superintendent of the Zoological Gardens, Regent's Park, and will take up his duties early in 1948. He has for some years been a member of the Forestry Department on the Gold Coast. He has since the war sent many animals, particularly reptiles, from West Africa to the gardens, for which services he was in 1945 elected a corresponding member of the Zoological Society. He is an authority on the forest squirrels of the Gold Coast.

Birth.—Jones.—To Pearl, wife of Eric Jones, B.V.Sc., M.R.C.V.S., Bangor, the gift of a daughter—Margaret.

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Forthcoming Marriage.—Creasey—Galbreath.—The engagement is announced and the marriage will take place shortly between Ronald Frederick Creasey, M.R.C.V.S., of The Warren, Long Sutton, Lincs., youngest son of the late Mr. C. H. Creasey, O.B.E., and Mrs. Creasey, of Llangerniew, Denbighshire, and Margaret Chapman Galbreath, M.R.C.V.S., daughter of the late Mr. and Mrs. R. A. W. Galbreath, of Kilmacolm, Renfrewshire.

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R.C.V.S. OBITUARY

Roberts, Horace L., F.R.C.V.S., 139A, Handford Road, Ipswich. Graduated London, December 12th, 1894; Fellowship May 20th, 1905. Died August 31st, 1947.

Stephenson, Harold, M.C., Lt.-Col., R.A.V.C. (retd.), The Hollies, Longdown Road, Sandhurst. Graduated London, December 20th, 1911. Died August 25th, 1947.

White, Matthew, 2, Hartington Place, Edinburgh. Graduated Glasgow, December 4th, 1894. Died August 20th, 1947; aged 73 years.

Mr. Horace L. Roberts, F.R.C.V.S.

In the death of Mr. Horace Roberts the profession mourns the loss not only of an outstandingly able practitioner whose name is a household word in East Anglia, but a man of forceful personality who figured prominently in the N.V.M.A. in earlier days and for many years rendered yeoman service on its Council.

Mr. Roberts was the fourth of eight sons of the late Sir Thomas Lee Roberts, of Bedford, and was born in 1873, in Islington. His father practised at the Parliamentary Bar and in the King's Bench Division.

Educated at Bedford Modern School, Mr. Roberts went to America for a year as a farm hand in New York State, but, deciding that this was not the life he wanted, he returned to England and joined his uncle, a veterinary surgeon, in Ludlow, as a pupil.

He qualified as M.R.C.V.S. in 1894, and gained his Fellowship in 1905. For six and a half years he was employed as a whole-time T.V.I. for the Board of Agriculture, at Diss, starting a private practice in Princes Street, Ipswich, in 1908. In 1911 he moved to Handford Road, where he has carried on his practice ever since.

Mrs. Roberts was the only daughter of the late Mr. and Mrs George Panks, of the Crown Hotel, Diss, and in April last we recorded the celebration of their golden wedding. On behalf of their many friends in the profession we extend deepest sympathy to the bereaved.

Mr. Matthew White, M.R.C.V.S.

Mr. Matthew White, whose death we record with much regret, qualified at the Glasgow College under Professor McCall, at the early age of 18 years. He was born at Fairlie, Ayrshire, and practised first at Castle Douglas. He went to Lerwick in 1912, and to the Orkneys in 1928 until 1937, when he retired and settled in Edinburgh. He was a dog enthusiast and latterly specialized in Shetland sheep dogs, a breed he helped to stabilize and which he kept until he died. He was also a very successful breeder of Shetland ponies.

Mr. White was married twice and leaves a widow, a daughter and four sons. The funeral at Warriston Crematorium, Edinburgh, on Friday, August 22nd, was largely attended.

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The British Association

"Swords Into Ploughshares"

On Wednesday of last week the British Association for the Advancement of Science opened its first full meeting since 1938, and appropriately in Dundee, where the meeting of 1939 was abandoned on the eve of war with only a small part of its programme achieved. Again most appropriately, the subject of the address given by the President, Sir Henry Dale, was "Science in War and Peace"; indeed, the phrase "Swords into Ploughshares" was adopted as the motto for the meeting.

The President, by way of question and answer, explored the vast progress in science made in the heat of war, and in the course of his address, referred to the survey by Sir Howard Florey and his team, which led them in 1939, ten years after its discovery by Sir Alexander Fleming, to take penicillin down from the shelf of sound but unexploited observation for the new study which brought it so rapidly into practical use. While the study of this substance owed some of its stimulus to the prospect of infected wounds and diseases of campaign, demanding more and better means of dealing with bacterial infections, the industrial production made penicillin, and then several penicillins, more rapidly available for the purely scientific investigation of their chemistry.

Under the continued pressure of war's demand a new campaign of chemotherapeutic research was opened in Britain and the United States to seek improved anti-malarial substances, and in a surprisingly short time promising results came. British experiments had culminated in the discovery of paludrine, a synthetic substance of a new type, more effective, and at the same time much freer from harmful accessory activity than quinine, or mepacrine, or any other of its predecessors.

Sir Henry Dale suggested that there is grave danger for the future of science if, consciously or unconsciously, research workers come to be confirmed in the war-time attitude that it is the exclusive task of science to provide rapid solutions for practical problems as they arise. Many, especially among the younger men, may have come to find congenial the pursuit of quick and spectacular results, may have become used to the opportunist view. The policy of secrecy to which many of them have been committed may also, he fears, have left abiding marks and may be contributing to the feeling of frustration which is certainly abroad in the world of science.

Science now found itself facing a situation in which hope and frustration contended—and how were they to deal with such a situation? Sir Henry Dale provided this answer: "With unquestioning loyalty to all our obligations; that first and foremost; but then also, I would urge, with a resolute watchfulness against any encroachment, on activities proper to peace, of a secrecy which we accepted as an abnormal condition in war, and with a determined effort to accelerate the liberation of science from all such entanglements."

He hoped that they might be able to ensure that the scientists of the near future would grow up as did their predecessors in an atmosphere of scientific freedom, so that they would be ready to stand in defence of science in its full integrity. It was their duty to defend the right of science to pursue unhindered its own task for mankind, within its own sphere.

£100 000 Fund for Science

During the conference the Association launched an appeal for a development fund of £100,000. The British Association's urgent need for additional financial support has been brought about by the shrinking income from existing endowments and the rapidly increasing costs which have to be borne if the Association is to continue its invaluable contribution to scientific enquiry.

The situation has features which are common enough to all self-supporting organizations, but the British Association believes before all things that it should retain its complete independence. It also has old obligations of honour, among them the upkeep of the historic house and estate at Downe where Charles Darwin lived and completed so much useful work. The existing endowment is now quite inadequate to support a programme of researches as might most fittingly be developed there.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreaks.

Swine Fever:

Lincs. (*Kesteven*).—Blankney Dales, Stixwould Ferry, Lincoln (Blankney, Lincs., Kesteven) (Aug. 29th).

Sheep Scab:

Montgomery.—Tymawr, Llangynog, Oswestry (Llangynog, Montgomeryshire) (Aug. 28th); Ysgynfa Dipping Bath, Llanrhaiadr, Montgomery (Aug. 29th); Gara, Penybontfawr, Oswestry (Aug. 29th).

Yorks, W.R.—Higher Hardacre Farm, Clapham, Lancaster (Clapham-cum-Newby, Yorks, W.R.) (Aug. 25th); Dale House Farm, Chapel-le-Dale, Carnforth, Lancashire (Ingleton, Yorks, W.R.) (Aug. 26th).

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SO-CALLED "SKIN TUBERCULOSIS" OF CATTLE

In view of the several references to the above condition recently appearing in our columns, the following note in the *Journal of the Ministry of Agriculture* for August may be found of interest:—

In many parts of Britain there exists a condition in cattle commonly called "skin tuberculosis." So far as is known it does not interfere with the general health of the animal, but its presence has a considerable bearing on the response to tuberculin testing.

The term "skin tuberculosis" is unfortunate in that there is no evidence whatsoever that the condition is a form of true tuber-

culosis. There *is* such a thing as true tuberculosis of the skin, but it occurs very rarely in cattle. Associated with the condition of so-called "skin tuberculosis" are micro-organisms of the acid-fast group, which includes the different types of true tubercle bacilli, besides many other micro-organisms. Up to the present, attempts to cultivate the micro-organism of skin tuberculosis under artificial conditions have failed, and it has, therefore, been impossible to study it in any detail. Further, there is no worthwhile evidence to show that the naturally occurring condition has been transmitted under experimental conditions to cattle or to any other species of animal. These findings have limited considerably any advance of our knowledge on the true cause and methods of acquiring "skin tuberculosis."

Affected cattle exhibit swellings or nodules, most commonly on the legs, frequently below the knee and hock, and sometimes on the shoulder and side of the chest or on the flank. They have also been reported as occurring on the teats and udder. It is seldom that they are found on any other part of the body. These swellings also vary in their situation in relation to the skin; some are found *in* the skin, others *under* the skin. When a number of nodules is present they usually occur in chains but are separated from each other. They vary in size up to that of a hen's egg; some are so small that they can neither be seen nor felt during life, and they are found only after the skin has been removed. The swellings are often firm, but occasionally, especially in the larger variety, they are soft. When cut into they are found to consist of firm tissue, but cases have been recorded in which pockets of pus were present. The majority of affected animals do not show evidence of true tuberculosis in any of the organs or tissues, but there have been cases where the two diseases have been present in the same animal.

Sensitivity to the Tuberculin Test

The importance of "skin tuberculosis" is that affected cattle react to injections of tuberculin, but in this connection it should be appreciated that all cattle which react positively to tuberculin are not necessarily infected with true bovine tuberculosis. Tuberculin testing is a means of measuring sensitivity in animals: various agents can give rise to a tuberculin sensitivity, and one of them is "skin tuberculosis." Undoubtedly, before the introduction of the purer forms of tuberculin, the use of the comparative test with avian tuberculin, the improved techniques and, more recently, the methods of interpreting the results of tuberculin testing, a number of animals reacting because of sensitivity due to causes other than true bovine tuberculosis have been wrongly condemned as suffering from the latter disease.

For some years past, however, the position has been much improved. In herds in which the tuberculin testing history is known (*e.g.*, attested herds) it is now possible, using the newer methods of interpreting the tests, and by carrying out repeat tests when necessary, to assess the *true* reason for reaction to the tuberculin test. Much research work, together with careful *post-mortem* examinations on many animals, has shown clearly that the present methods of interpreting the results of tuberculin testing are sound and enable differentiation to be made between the various causes of sensitivity to the tests: it is seldom, therefore, that animals suffering from "skin tuberculosis" only are wrongly condemned as true reactors to the tuberculin test.

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"The Journal of the Association of Veterinary Students"

We note with interest that the Association of Veterinary Students, which held its Second Annual Conference this year, thus early in its career has acquired sufficient support to feel itself justified, despite current handicaps in publication, in embarking upon the issue of a periodical, a step which—if, as we hope, it meets with success—in itself will do much to strengthen the organization.

The first issue, well arranged and printed, and on good paper, is a credit to its producers. It includes informative contributions on current activities in our veterinary schools, on the "Loveday" Report and on the Veterinary Educational Trust. The proceedings of the Association's Executive Committee are featured, and we look forward to the appearance in this magazine, in due course, of the reports of the proceedings of this year's Annual Conference and its successors.

Enquiries concerning the *Journal* should be addressed to the Hon. Secretary of the Association of Veterinary Students, Mr. G. E. Broughton, at "Leahurst," Windle Hill, Neston, Wirral, Cheshire.

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NATIONAL NATURE RESERVES

A nation-wide biological service under a permanent nature conservation board to preserve and study the wild life of England and Wales is recommended in a report by the Wild Life Conservation Special Committee (England and Wales) (Stationery Office, Cmd. 7122, price 4s.), issued by the Ministry of Town and Country Planning.

The main recommendation is that the Government should take general responsibility for conserving and controlling the country's flora and fauna. The geological and physiographical features on which the plants and animals live and depend should also be maintained and protected.

The committee propose that 73 specified areas, totalling less than 70,000 acres but representing the characteristic types of natural vegetation with the accompanying fauna, should be preserved as national nature reserves, and that larger conservation areas should be designated in which changes in land use should be subject to consideration of the biological and physiographical as well as the other interests.

These measures would entail public money being spent on taking over management of the reserves; employing scientists with specialized biological knowledge and specialists in certain allied fields; general administration; and accommodation for research.

The report states that the benefits would be great and would extend over agriculture, forestry, game preserving, park and estate management, fresh water fisheries, as well as water supply and drainage.

The reserves would either be directly acquired or, by agreement with the owners, their management, including shooting and fishing rights, would be transferred to the biological service. Students and nature lovers would be welcomed, and conducted parties of students, but the reserves could not be visited as beauty spots by large numbers of people without the risk of serious damage, and public access would have to be subject to regulations.

Research Institutes

Though the areas for the proposed reserves have been selected to represent the principal types of natural vegetation and the homes of animal communities, they do not include all the sites of outstanding value in these respects. It is proposed, therefore, to encourage the formation of local reserves by local authorities and others, including educational reserves open to schools for field work in natural history.

The establishment of one or more terrestrial research institutes, at which fundamental investigation on problems relating to field biology can be carried out in association with the universities, has been advocated by a committee of the Royal Society. The Wild Life Conservation Committee support this proposal and recommend the formation of four such institutes.

The report calls for the early introduction of a Wild Life Protection Bill, and the creation of a biological service to protect wild life, based on simple principles and relying on legal penalties only in the last resort.

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ANIMAL DISEASES AND HUMAN WELFARE

"In March, 1946, the Section of Biology of the New York Academy of Sciences held a conference on the 'Relation of Diseases of the Lower Animals to Human Welfare,' and the nine papers read before this conference have been published in the *Annals* of the Academy (**48**, Art. 6, pp. 351-576; 1947)," writes Dr. G. Lapage, under the above heading, in *Nature*, issue March 16th.

The review continues: "These papers, each of which is contributed by an expert, deal with rabies, equine encephalomyelitis, psittacosis and diseases related to it, brucellosis, plague, tuberculosis, anthrax, swine erysipelas and various animal parasites transmissible to man. In his introductory address, W. A. Hagan points out that the authors of the various papers consider primarily diseases of animals which are more or less directly transmissible to man, but that these diseases also affect the welfare of mankind by their economic effects. Obviously, for example, they affect our food supplies and, in addition, many people depend for their livelihood upon the rearing of farm animals.

"The statistics given by Hagan of the losses inflicted by disease upon farm animals in the United States certainly bring home to us, especially just now when world food supplies are so difficult, the very great importance of the study of animal diseases. Nearly half the pigs born in the United States die before they reach marketable age. To this loss must be added the loss of the grain fed to them and also the increased cost of the products derived from the pigs which do survive. About a quarter of the 'adult chickens' die from disease each year in the United States, and one cow out of every four or five contracts inflammation of the udder (mastitis), with a consequent serious reduction of the milk supply and an increase in its price. The total losses from animal diseases in the United States are, Mr. Hagan thinks, probably smaller than they are in any other major country. Rightly he calculates not only the

losses due to actual deaths, which represent only a fraction of the total loss, but also the effects of various kinds of parasitic animals which reduce the vitality of farm stock and render them more liable to diseases caused by other agents. As Mr. Hagan puts it, losses due to morbidity are much greater than those due to mortality.

"A table of losses in 1942 due to various causes, which was compiled by the United States Bureau of Animal Industry, places the total losses due to parasitic animals alone at 290 million dollars, which is 69 per cent. of the total animal loss of 418 million dollars. Chronic infectious diseases accounted for a loss of 70 million dollars. Acute fatal diseases, on the other hand, caused only 15 per cent. of the total loss, and more than three quarters of this amount was due to a single disease—hog cholera. These figures, startling as they are, are considered by Mr. Hagan to be far too low. He would place the total annual loss at more than a thousand million dollars.

"There is, however, a brighter side to this grave picture. The table given also shows that some of the great scourges of farm stock in other countries have been eliminated, or nearly eliminated, from the United States. Tuberculosis of cattle, for example, which is still a serious scourge of Britain and other countries, has been almost eradicated from the United States; and rinderpest, foot-and-mouth disease, bovine piroplasmosis and contagious pleuro-pneumonia have also been wiped out.

"These are great achievements. Their value in terms of the relief of animal suffering is incalculable. Their economic value to man can be gauged by reference to the figures given above. Nor must we forget that many of the major diseases of farm stock are communicable to man, tuberculosis being in the forefront of these. It would seem, indeed, that, if the achievements recorded in this series of papers could be repeated in all the great food-producing countries of the world, the present urgent problem of the world's food supplies would either disappear or would be very much less difficult to solve. How much is being done in various countries is evident in the articles which appear in this important publication. Unhappily evident also, however, is the gravity of the menace of the diseases which still remain to be overcome. The conquest of these may take time; but it cannot long resist the kind of spirit and effort which veterinarians all over the world, and the medical men who work with them, are contributing to the international service of mankind."

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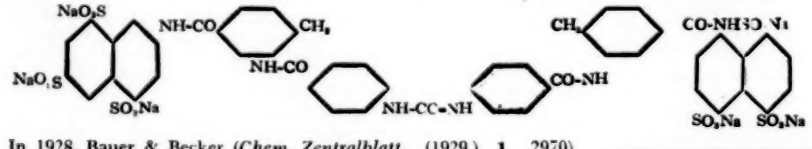
Identity of Bayer 205 with Suramin B.P.

From the enquiries that are received from time to time it is evident that many users are still in doubt as to the precise composition of the extremely important trypanocide Bayer 205, the discovery and development of which was an achievement of outstanding importance and merit.

Bayer 205 is a complex substance, the structure of which is not possible to prove by normal chemical and physical methods, and previously there has been no exact evidence of its structure. As a result of the synthesis and biological examination of a large number of complex ureas, the French workers Fourneau, Trefouel, Trefouel & Vallée (*C.R.*, **178,** 675, and *Ann. Inst. Pasteur*, **38,** 81) concluded that Bayer 205 was almost certainly identical with their substance Fourneau No. 309, which has the following structure:—



In 1928, Bauer & Becker (*Chem. Zentralblatt.* (1929.) **1.** 2970) of the Georg-Speyer-Haus in Germany did reveal a constitution for Bayer 205, identical with that deduced by Fourneau, but as the Germans never challenged the validity of the Poulenc Frères patent for the manufacture of Fourneau 309, on the grounds of prior manufacture, doubt as to the constitution of Bayer 205 still remained.

Nevertheless, as Fourneau's evidence appeared sufficiently conclusive, it was a compound of the structure of Fourneau 309 which British workers set out to manufacture in 1934 and sell as "Antrypol," and which is now described in the British Pharmacopoeia as Suramin.

All doubts as to the complete identity of Bayer 205 (also marketed as Germanin and as Naganol) with Suramin B.P. have finally been dispelled by an examination of the actual German manufacturing process, which is precisely on the lines indicated in the B.P. monograph. The German manufacturing process was obtained during a B.I.O.S. Mission, and is deposited with the Foreign Documents Unit Library, Lansdowne House, Berkeley Square, W.1, with the file number F.D. 20/46, I-G Farben A.G. Elberfeld, Pharmaceuticals, process No. 59.

It can now be said quite definitely, therefore, that the following are identical—the German products Bayer 205, Germanin, and Naganol, the French product Fourneau 309, the British products "Antrypol" and Suramin B.P., and the American product "Naphuride Sodium."

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

Correspondents should write as briefly as possible and letters should not exceed 350 words.

ASCERTAINING "REPRESENTATIVE" OPINION

Sir,—While few members of the profession will fail to agree with the efforts of the N.V.M.A. to improve the status of the veterinary staff of the Animal Health Division, the decisions and resolutions of Divisions regarding this matter definitely do not provide a representative cross-section of the profession's views.

The bulk of the younger and recently demobilized members of the profession are not members of Divisions and never have any opportunity to attend meetings. Consequently all decisions are made principally by established practitioners whose views are liable to be essentially conservative.

The salary scales of the Animal Health Division may not be satisfactory, but they compare favourably with those offered to Assistants in general practice, as may be seen by reference to any copy of *The Veterinary Record*. The salary and conditions of employment of many Assistants amount to little more than "sweated labour," and there can be little prospect of improvement so long as the opinions of a small body of established practitioners are considered as representative of the opinions of the profession as a whole.

I suggest, Sir, that a start should be made by improving the obviously unsatisfactory condition of the younger members of the profession, and I wholeheartedly support "G. E.'s" suggestion that important decisions regarding the future status of the profession should be based on a plebiscite opinion of the whole profession.

Yours faithfully,

2, Redcar Road, R. I. MACRAE.
Guisborough, Yorks.

[*Editor's note.*—Conditions of practice may possibly be more arduous than those of the Inspectorate, but to say that the salaries are better for the latter is incorrect to-day. Reference to the advertisement columns of the *Record* reveals the fact that most Assistants are offered a commencing salary of £500 or more, and often considerably more, and there is no age bar. With regard to the Ministry's service, the facts are as follows:—

Research Officers, V.I. Officers and Inspectors living in London receive £450 + consolidation bonus of £90 = £540.
In the Provinces £30 is deducted = £510.
If one is less than 25 years of age, £25 is deducted for each year: *e.g.*, salary at 23 years of age = £540 − £30 − £50 = £460.]

H.M. STATIONERY OFFICE PUBLICATIONS

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